

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number  
WO 2004/033672 A3

(51) International Patent Classification<sup>7</sup>: C12N 15/11,  
C07K 14/47, A61K 38/17, 31/7088

(74) Agent: OGILVY RENAULT; Suite 1600, 1981 McGill College Avenue, Montreal, Québec H3A 2Y3 (CA).

(21) International Application Number:  
PCT/CA2003/001539

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 6 October 2003 (06.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/416,545 8 October 2002 (08.10.2002) US

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicants (*for all designated States except US*):  
INSTITUT DE RECHERCHES CLINIQUES DE MONTRÉAL [CA/CA]; 110, Av. Des Pins Ouest, Montréal, Québec H2W 1R7 (CA). BRITISH COLUMBIA CANCER AGENCY [CA/CA]; 600 West 10th Avenue, Vancouver, British Columbia V5Z 4E6 (CA).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): SAUVAGEAU, Guy [CA/CA]; 7390, De Tilly, Montréal, Québec H3R 3E3 (CA). HUMPHRIES, Keith [CA/CA]; 7625, Borden, Vancouver, British Columbia V5P 3C9 (CA). KROSL, Jana [CA/CA]; 5223, Globert, Montréal, Québec H3W 2E6 (CA).

(88) Date of publication of the international search report:  
10 June 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2004/033672 A3

(54) Title: STEM CELL EXPANSION FACTOR BLOCKING A GENE LIMITING HOX-INDUCED EXPANSION AND METHOD USING SUCH FACTOR

(57) Abstract: The present invention relates to a stem cell expansion factor comprising a blocker which reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene enhances expansion of stem cells containing a HOX peptide. The present invention also relates to a composition for enhancing expansion of stem cells comprising an amino acid sequence having the activity of a HOX peptide, wherein said peptide being able to cross a cell membrane, and a blocker which reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of a HOX peptide enhances expansion of stem cells. The preferred HOX peptide is HOXB4 and the preferred gene is PBX.